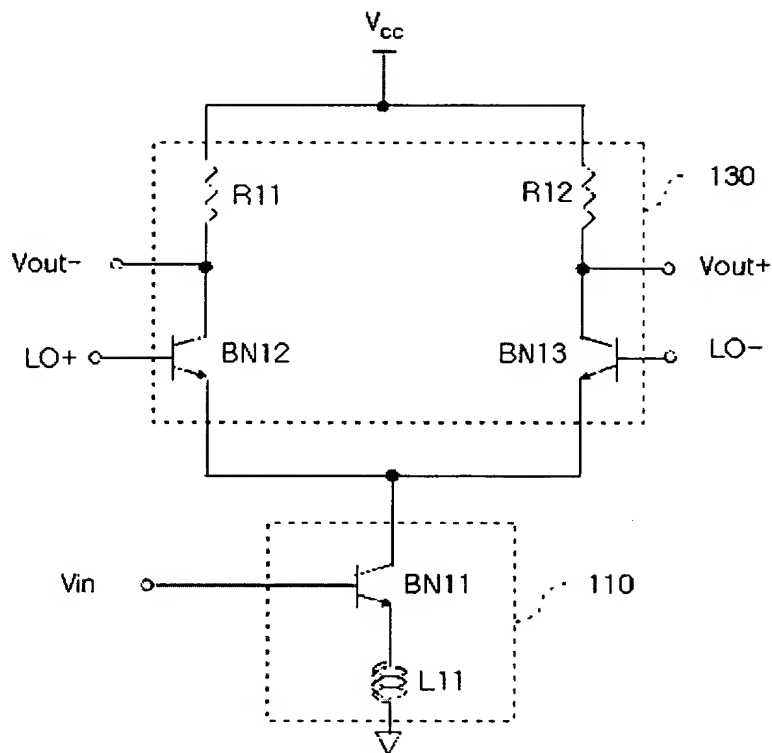




Fig. 1
(Prior Art)



The circuit diagram shows a differential amplifier with two input nodes, $I/P1+$ and $I/P1-$, and two output nodes, $I/P2+$ and $I/P2-$. The circuit is powered by a positive supply VCC and a negative supply (ground). The input stage consists of two NPN transistors, 11 and 12, whose emitters are connected to a common tail node. This tail node is connected to ground through a tail current source 10, represented by a circle with a downward arrow. The base of transistor 11 is connected to $I/P1+$ through a resistor 13, and the base of transistor 12 is connected to $I/P1-$ through a resistor 14. The collector of transistor 11 is connected to VCC through a resistor 19, and the collector of transistor 12 is connected to VCC through a resistor 20. The output nodes $I/P2+$ and $I/P2-$ are taken from the collectors of transistors 11 and 12, respectively. A current mirror load is connected between the two collector nodes. It consists of two PNP transistors, 17 and 18, whose emitters are connected to the collector nodes of 11 and 12, respectively. The bases of transistors 17 and 18 are connected to each other and to VCC through a resistor 22. The collector of transistor 17 is connected to the collector of transistor 12 (output $I/P2-$), and the collector of transistor 18 is connected to the collector of transistor 11 (output $I/P2+$). Two resistors, 23 and 24, are connected in series between the two collector nodes of the current mirror (the nodes where the emitters of 17 and 18 are connected).